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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,913	04/26/2002	Alf Pettersen	P 290591	9935
909	7590	11/17/2004		
PILLSBURY WINTHROP, LLP P.O. BOX 10500 MCLEAN, VA 22102			EXAMINER ROSENBERGER, RICHARD A	
			ART UNIT 2877	PAPER NUMBER

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/030,913

Applicant(s)

PETTERSEN, ALF

Examiner

Richard A Rosenberg

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 1004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Art Unit: 2877

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pryor (US 4,838,696) and Pryor (US 4,753,569), taken together.

Pryor '696 shows a sensor unit with apparatus for local, point by point detection of surface geometry, wherein the sensor unit includes an optical scanner (16) for non-touch probing and detection of the surface geometry of the object (see figure 2). The sensor unit is mounted on a robot arm (14) and has position measuring unit (various components) for determining the position of the sensor unit, with a computing unit to relate the optical scanner data and the position data.

Pryor '696 does not use a camera-based sensor and a network of reference points in known positions for determine the position of the sensor unit.

Pryor '569 shows measuring the position of an "operative end" mounted on a robot arm in which a camera based unit (including cameras 25, 26) are mounted on the end of the robot arm and view a network of reference points (28, 28) to determine the position of the "operative end", and teaches that by placing the cameras on the arm and the reference points off the arm "the accuracy of the solution may be considerably

higher” than the reverse placement (column 4, lines 44-47). Pryor ‘569 notes that the “operative end” may be a measurement device (column 3, lines 2-3).

It would have been obvious to use the known position measuring arrangement of Pryor ‘569 to measure the position of the optical scanner on the robot arm of Pryor ‘696 because both are direct to the same general problem (locating in space the position of an “operative end” mounted on a robot arm), and mounting the camera-based unit on the robot arm is known and is known to produce accurate measurements without the relatively complex combination of systems used by Pryor ‘696.

Pryor ‘569 notes that the reference points “may also be located ... on the objects themselves” (column 5, lines 17-20).

Moving the sensor head over the object in Pryor ‘696 in “stepwise movement” to position the measuring head in the desired locations would have been obvious because such movement would allow time to make the measurements at the various locations without needing concern over movement during the measurements affecting the accuracy of the measurements.

Pryor ‘696 shows using a laser based triangulation system as the optical scanner (see figure 2, and column 3, lines 34-38). The use of similar known laser based triangulation systems, or other known sensor systems that measure the distance to the surface being measured, would have been obvious. The type of known robot arm used to manipulate the sensor system is a matter of obvious choice requiring only ordinary skill and knowledge in the art.

Pryor '569 teaches that the cameras can be "solid state photodetector arrays of the type having a large number of separate photodetectors" (column 3, lines 66-68) and are "relatively light" (column 4, line 31). The choice of known CCD cameras, which have these characteristics, for the cameras of the reference would have been obvious.

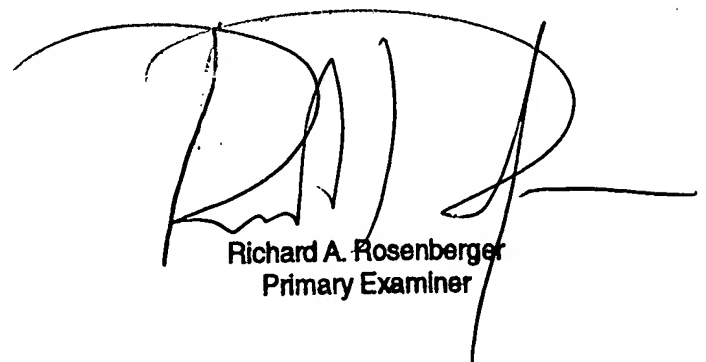
3. The remarks filed 20 August 2004 have been considered; however, the newly cited references and new grounds of rejection above have rendered the arguments moot.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard A Rosenberger whose telephone number is (571) 272-2428. The examiner can normally be reached on Monday through Friday during the hours of 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

R. A. Rosenberger
12 November 2004



Richard A. Rosenberger
Primary Examiner